UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

BEIJING CHOICE ELECTRONIC TECHNOLOGY CO., LTD.,	)	
Plaintiff,	)	
	)	No. 18 C 825
v.	)	
	)	Judge Sara L. Ellis
CONTEC MEDICAL SYSTEMS USA, INC., and CONTEC MEDICAL SYSTEMS CO., LTD.	)	
Defendants.	)	

OPINION AND ORDER

In this lawsuit, Plaintiff Beijing Choice Electronic Technology Co., Ltd. ("Choice") alleges that Defendants Contec Medical Systems USA, Inc., and Contec Medical Systems Co., Ltd. (collectively, "Contec") have infringed on Choice's patents for a fingertip pulse oximeter and methods for updating the display mode of fingertip pulse oximeters. The parties now seek construction of several claims in the subject patent, U.S. Patent No. 8,639,398 (the "'308 patent"). The Court construes the disputed claims and provides its analysis as stated below.

LEGAL STANDARD

"Judicial 'construction' of patent claims aims to state the boundaries of the patented subject matter, not to change that which was invented." *Fenner Invs., Ltd. v. Cellco P'ship*, 778 F.3d 1320, 1323 (Fed. Cir. 2015). Not all claims require construction, only those in dispute and only to the extent necessary to resolve the dispute. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). The Court's inquiry begins by considering how a person of ordinary skill in the art ("POSITA") would understand a claim term. *Phillips v. AWH Corp.*, 415

F.3d 1303, 1313 (Fed. Cir. 2005). A POSITA reads a term in the context of the claim itself as well as the entire patent, including the specification. *Id.*

The Court's analysis primarily relies on the intrinsic evidence, which "includ[es] the claims themselves, the specification, and the prosecution history of the patent." *Sunovion Pharms., Inc. v. Teva Pharms. USA, Inc.*, 731 F.3d 1271, 1276 (Fed. Cir. 2013). The Court first reviews the language of the claims themselves, applying a "heavy presumption that claim terms take on their ordinary meaning as viewed by one of ordinary skill in the art." *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed. Cir. 2003) (citation omitted) (internal quotation marks omitted). The presumption of ordinary meaning prevails in all but two situations: (1) "when a patentee acts as his own lexicographer" or (2) "when the patentee disavows the full scope of the claim term in the specification or during prosecution." *Poly-Am., L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016).

"In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996); *see also Sunovion Pharms.*, 731 F.3d at 1276 (intrinsic evidence is "usually dispositive"). In such cases, "it is improper to rely on extrinsic evidence," which includes dictionary definitions, expert testimony, and other "evidence that is external to the patent and file history." *Vitronics*, 90 F.3d at 1583–84. The Court may consider extrinsic evidence, however, "if needed to assist in determining the meaning or scope of technical terms in the claims," *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1216 (Fed. Cir. 1995), and to ensure that a construction "is not inconsistent with clearly expressed, plainly apposite and widely held understandings in the pertinent technical field," *Plant Genetic Sys., N.V. v. DeKalb Genetics Corp.*, 315 F.3d 1335, 1346 (Fed. Cir. 2003) (citation omitted). Extrinsic evidence is generally considered "less reliable

than the patent," *Phillips*, 415 F.3d at 1318, and "may not be used to vary or contradict the claim language" or "the import of other parts of the specification," *Vitronics*, 90 F.3d at 1584.

While the Court must construe claims in light of the specification, the Court cannot typically read limitations from the preferred embodiments or specific examples in the specification into the claims. *Enercon GmbH v. Int'l Trade Comm'n*, 151 F.3d 1376, 1384 (Fed. Cir. 1998) ("This court has repeatedly stated that while claims are to be construed in light of the specification, they are not necessarily limited by the specification."). Thus, while the Court may use a specification to aid in the interpretation of the claims, the Court may not use it as a source for adding extraneous limitations. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998) ("If we need not rely on a limitation to interpret what the patentee meant by a particular term or phrase in a claim, that limitation is 'extraneous' and cannot constrain the claim." (citations omitted)).

ANALYSIS

I. Late Disclosure

Before reaching the substance of the parties' arguments, the Court must address Choice's procedural objection to Contec's proposed construction of "power source" and "when the user presses a button." Choice asks the Court to refrain from construing these terms because Contec belatedly disclosed its alternative constructions in violation of the Court's deadlines.[1] Choice argues that this prejudiced its ability to seek discovery related to these two terms, "such as certain designs and operations of the accused products." Doc. 150 at 21. Choice also argues that construing these terms will waste resources because Contec has not certified that these terms are outcome-determinative pursuant to Local Patent Rule 4.1(b). Contec responds that these terms

[1] The Court ordered the parties to disclose proposed claim constructions by May 15, 2019, and the Court ordered discovery closed by June 14, 2019. Contec did not disclose these terms until June 21, 2019, the due date of its opening claim construction brief.

are outcome-determinative, and the Court must resolve disputes regarding the scope of the disputed claims.

Choice did not renew its objection at the Markman hearing on September 6, 2019, and instead thoroughly addressed Contec's proposed constructions through the expert witnesses and during its argument. Additionally, further discovery related to Contec's device would be of little value since "claims may not be construed by reference to the accused device." *NeoMagic Corp. v. Trident Microsystems, Inc.*, 287 F.3d 1062, 1074 (Fed. Cir. 2002). Thus, the Court is hard-pressed to find that the late disclosure prejudiced Choice to the point that it warrants ignoring Contec's contentions. *See Par Pharm., Inc. v. QuVa Pharma, Inc.*, 764 F. App'x 273, 278 n.6 (3d Cir. 2019) (finding district court properly denied motion to strike, in part because moving party had the opportunity to address the claim and had already sought to refute the opposing party's arguments through its own expert declaration).

Additionally, the Court agrees that the dispute regarding the phrase "when the user presses down a button" is a dispute regarding the scope of the claim, and not simply the definition of a term. The Court must resolve such disputes. *See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) ("[T]he parties agreed that 'only if' has a common meaning, but then proceeded to dispute the scope of that claim term . . . . In this case the 'ordinary' meaning of a term does not resolve the parties' dispute, and claim construction requires the court to determine what claim scope is appropriate."). Consequently, the Court will consider Contec's construction of these additional terms.

II. "Powered On" and "Powered Off"

The first disputed claim terms are "powered on" and "powered off" as used in claims 2 and 5. The relevant portions of the disputed claims are as follows:

> **Claim 2**: "The method of claim 1, further comprising . . . determining whether the fingertip oximeter is powered on; if the fingertip oximeter is powered off, turning on the power source to provide power to the fingertip oximeter in response to the press-down of the button; and if the fingertip oximeter is powered on, generating an interrupt signal for updating the current display mode in response to the press-down of the button."
>
> **Claim 5**: "the central processor is further configured to . . . determine whether the fingertip oximeter is powered on; if the fingertip oximeter is powered off, turn on the power source to provide power to the fingertip oximeter in response to the press-down of the button; and if the fingertip oximeter is powered on, generate an interrupt signal for updating the current display mode in response to the press-down of the button."

Contec argues that the Court should construe "powered on" and "powered off," respectively, to mean "receiving voltage from a power source," and "not receiving voltage from a power source." According to Contec, "powered off"—the focus of the parties' contentions—is a term of art that a POSITA would understand to mean that no power is being supplied to the device. Contec argues this is consistent with the specification, which states: "According to one embodiment of the present invention the output of the output & management unit is +3.3V and +8V. When turning off, the power input can be disconnected so that the output of the power supply becomes 0V." '308 Patent at 6:1–4. Contec argues its construction is also consistent with international standards governing the meaning of the on symbol ("I"), which means the device is connected to a current and potentially dangerous, and the off symbol ("O"), which means no current is flowing to the device.

Choice responds that the terms do not denote whether the device is receiving power, but rather whether the device is in an on status or an off status. "Powered off," under this reading, does not necessarily mean that all circuit elements lack power. Choice contends that a POSITA would readily recognize that "powered off" can include sleep or standby mode when at least a portion of the device still receives a low amount of power. Choice argues that no further construction is necessary, but that to the extent the Court finds one necessary, the Court should construe the terms as: "in an on status," and "in an off status."

Contec is correct that the specification describes a device that disconnects the power input so that the device receives zero volts when it is turned off. But this is only one embodiment, and "it is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). The specification even states that the power output *can* be turned to zero volts, not that it must be.

A POSITA would readily understand that "powered off" could mean a device is receiving zero volts, or it could mean that a device is switched to a low-power mode, where only a portion of the device is supplied with power. Although the patent does not disclose a low-power mode, it is certainly consistent with it. The specification, for example, describes how the device can automatically turn off: "If the master chip cannot detect any data for 8 seconds, the system is shut down, being in the state of turning off." '308 Patent at 6:15–16. According to Dr. Jonas Pologe—Choice's expert witness who submitted a declaration to the Court and also testified at the Markman hearing—when the device automatically turns off in this way there is still power in at least a portion of the device's circuitry. This is because the microprocessor requires power to turn the device off, and the button requires power to turn the device back on. Pologe testified that even the embodiment describing the output as zero volts would still allow for power to be supplied to the button in order for it to work.

Contec disputes this last point. But, as already explained, even if the specification describes a device that outputs zero volts, this embodiment does not measure the scope of the patent. And in this case, a POSITA would probably favor an interpretation that still allows for a low-power mode. Utilizing a standby or sleep mode is common in electronic devices that are

responsive to commands even though they are turned off. A TV for example, would still draw some amount of power when it is "powered off," "otherwise it could not receive and interpret the power on/off signal from the remote." Pologe Declaration ¶ 49, Doc. 150-6. In order to ensure that most electronic devices are at zero volts, a person would usually need to physically unplug the device or remove its batteries. Even a lay person would understand that "powered off" does not necessarily mean that a device is receiving zero volts. *See Phillips*, 415 F.3d at 1314 ("In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words."). The Court agrees that a POSITA would understand "powered off" to mean that a device is turned off but might still be in a low-power mode. Pologe Decl. ¶ 48 ("The term 'off' is often used synonymously and interchangeably with the terms 'standby' or 'sleep mode.'"). A POSITA would also understand "powered on" as a complementary term that means a device is turned on and receiving power. Because the terms' meanings are clear in the context of the patent, these terms do not require any construction.

III. "Power Source"

The second disputed claim term is "power source" as used in claims 1, 2, 3, 4, 5, and 6. Choice does not assert claims 3 and 6 against Contec, but the Court includes the relevant portions of all six claims here to show the context in which the patent uses this term. *See Phillips*, 415 F.3d at 1314 ("Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.").

> **Claim 1**: "when the user presses down a button, said button further controlling a power source of the fingertip oximeter . . . ."
>
> **Claim 2**: "if the fingertip oximeter is powered off, turning on the power source to provide power to the fingertip oximeter in response to the press-down of the button . . . ."

Claim 3: "turning on the power source further includes letting the central processor take over control of the power source after the button is released."

Claim 4: "a power source unit for supplying power to the fingertip oximeter; a button . . . further controlling the power source . . . wherein said button also controls the power source unit of the fingertip oximeter . . . ."

Claim 5: "if the fingertip oximeter is powered off, turn on the power source to provide power to the fingertip oximeter . . . ."

Claim 6: "the central processor is further configured to take over control of the power source after the button is released."

Contec argues that the Court should construe this term to mean "original source of power, such as a battery, that provides energy to a device." Although "power source" only appears in the claims language, Contec argues that the Court can deduce the term's meaning from an embodiment that describes a "power supply unit" made up of a "power input unit" and a "power output and management unit." '308 Patent at 5:49–50. The input unit consists of batteries and powers the output unit. The output unit, in turn, regulates voltage to the CPU. Thus, Contec argues "power supply unit" has a distinct meaning that refers to the entire power mechanism—the input and output unit. The Court can then understand the term "power source" as the original source of power, i.e. the power input unit or the batteries. Choice responds that no construction is necessary because it is clear from the patent as a whole that "power source" refers to the power supply unit. Choice argues that to the extent a construction is necessary the Court should construe the terms to mean "power supply unit."

Contrary to Contec's assertion, "[s]imply referring to two terms as alternatives or disclosing embodiments that all use the term the same way is not sufficient to redefine a claim term." *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1368 (Fed. Cir. 2012).[2] As

[2] *Thorner* considered the alternative use of the terms "attached" and "embedded" in the context of a tactile feedback system for video games. 669 F.3d at 1364. The *Thorner* court held that although "embedded" referred to an embodiment affixed to an internal wall, that did not mean the broader

Dr. Pologe testified, "power source" must be understood by reference to the thing receiving the power. *See Trs. of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) ("The only meaning that matters in claim construction is the meaning in the context of the patent."). Read in the context of the entire patent, "power source" likely refers to the "power supply unit" and not simply the battery or the power input unit. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 389, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996) ("[A claim] term can be defined only in a way that comports with the instrument as a whole."). The claims state that the user can control the "power source" by pressing a button. Alternatively, once the button is released, the CPU can take over control of the "power source." *See* '308 Patent at 8:1–9:3. The specification discloses that the power output unit acts as an intermediary between the button, the CPU, and the power input unit by regulating the voltage that the batteries supply. *Id.* at 5:49–52, 6:1–13. This chart illustrates the interplay between the different parts of the device:

"attached" automatically signified something affixed to an external wall. *Id.* at 1368. The Federal Circuit has criticized *Thorner* for requiring an explicit redefinition or disavowal of a claim's scope. *See Trs. of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) ("Our case law does not require explicit redefinition or disavowal."). Since then, the Federal Circuit has cited *Thorner* approvingly for the same proposition. *See Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1044 (Fed. Cir. 2019) ("[P]atentee must 'clearly express an intent' to redefine the term." (quoting *Thorner*, 669 F.3d at 1365)). For the purposes of this Opinion, the import of *Thorner* is consistent with *Trustees of Columbia*: "claims . . . do not stand alone," and the claims only have meaning in the context of the patent as a whole. *Trs. of Columbia*, 811 F.3d at 1363. Here, constraining "power source" to mean "power input unit" would be inconsistent with the specification.

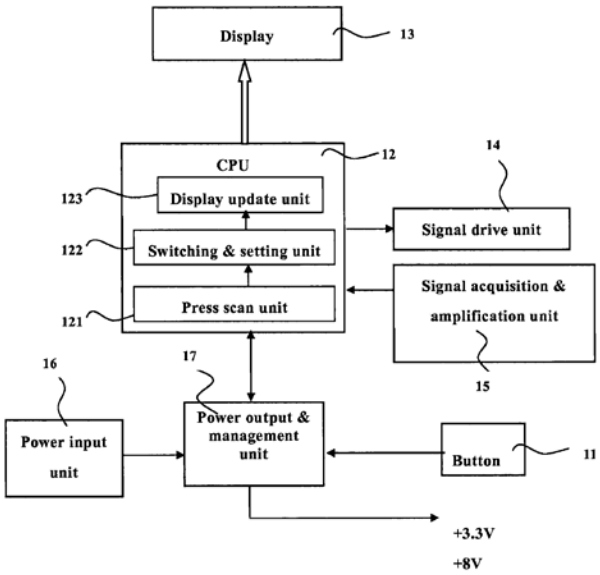

Fig. 2

Id., Fig. 2. According to this chart, and the methods disclosed in the specification, the button or CPU would interact with the power output unit to control the power input unit. Thus, when the claims disclose that the button or the CPU can control the "power source" to the oximeter, this must refer to the entire "power supply unit" and not simply the batteries.

Contec does, however, raise a valid argument with respect to the embodiment that allows the device to disconnect the power input unit and output zero volts. '308 Patent at 6:1–4. Dr. Stone testified, and the Court agrees, that this embodiment describes a button that could directly control the power input unit by creating a connection between the input and output unit. Under this reading, "controlling a power source" would mean controlling the power input unit. *Id.* at 8:3–4. This embodiment leads to the conclusion that "power source" could refer to either the power input unit or the power supply unit—it depends on how a person constructs the device.

The Federal Circuit has "cautioned against interpreting a claim term in a way that excludes disclosed embodiments, when that term has multiple ordinary meanings consistent with the intrinsic record." *Nobel Biocare Servs. AG v. Instradent USA, Inc.*, 903 F.3d 1365, 1381

(Fed. Cir. 2018), *as amended* (Sept. 20, 2018). Here, there is no reason to apply a construction that excludes a valid interpretation of the disclosed embodiment. Thus, the Court construes "power source" to mean the "original source of power, such as a battery, or the power supply unit."

IV. "When the User Presses Down a Button"

The third disputed claim term is "when the user presses down a button" as used in claims 1 and 4. The relevant portions of the disputed claims are as follows:

> **Claim 1**: "the method comprising: detecting a user instruction for updating a current display mode of the fingertip oximeter when the user presses down a button . . . ."
>
> **Claim 4**: "the central processor being configured to: detect the user instruction when the user presses down the button . . . . "

The parties' dispute boils down to whether the Court should construe "when" according to its temporal meaning (i.e. "at or during the time") or according to its conditional meaning (i.e. "in the event that"). Contec argues that the Court should give the term its temporal meaning and construe the phrase as "at or during the time that the user presses down a button." Contec argues that this construction is necessary because the '308 Patent obscures the distinction between detecting a user instruction while the button is pressed down, as opposed to after the button is released. Contec points out that the '308 Patent already distinguishes between pressing a button, '308 Patent at 8:2, 48–49 ("when the user presses down a button"), and the release of a button, *id.* at 8:29, 9:3 ("after the button is released"), implicitly confirming that "when" must mean at the moment, or while the user presses the button.

Choice responds that the claim is not contingent on when the CPU detects the button press, only that the button press triggers the detection. Choice argues that Contec's construction also contradicts the specification because it already describes an embodiment where the display is updated after the button is released. *See* '308 Patent at 6:20–23. Choice posits that no

construction is necessary, and that to the extent a construction is necessary the phrase should be construed: "in the event that the user presses down a button."

The plain meaning of "when" encompasses both the temporal and conditional meaning. Where claim terms carry two different meanings, the Court may look to the specification for guidance on how to interpret the scope of the claims. *See Novartis Pharm. Corp. v. Eon Labs Mfg., Inc.*, 363 F.3d 1306, 1315 (Fed. Cir. 2004) ("[T]erms frequently have broad and narrow meanings. We then look to the specification and file history to determine whether the patentee made a clear disclaimer of the broader meaning."); *Phillips*, 415 F.3d at 1313 ("[T]he [POSITA] is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.").

The specification demonstrates that "when" is used according to its broader, conditional meaning because it describes the button press as a triggering event: "the press scan unit determines *whether* the button is pressed down, and transmits a first signal regarding pressing-down of the button to switching & setting unit *if* it detects that the button is pressed down." '308 Patent at 6:64–67 (emphasis added). Another part of the specification describes how the display mode is updated "[e]ach time the button is pressed down." *Id.* at 4:45–50 ("[A]s the central processing unit (CPU) detects that the button is pressed down for one time, the display mode is updated once. When the button is pressed down again, the display mode is also updated again."). These parts of the specification suggest that the detection of the user instruction is not contingent on whether the detection occurs at a certain time.

Contec argues that construing the terms according to their conditional meaning renders the word "down" superfluous. But "down" is already superfluous because the '308 patent does

not contemplate a button that can be pressed in any direction other than down. "Press" and "press down" in the context of the '308 Patent mean the same thing.

Contec also argues that the patent's description of a press scan unit, which filters out noise from button trembling, only makes sense if the detection occurs during the button press. The press scan unit's function is to detect when a true button press occurs. It does this by trying to detect a button press "at a specific interval." *Id.* at 7:25–26. "If the button has not yet been pressed down, the display update unit and a blood oxygen parameters & waveform processing unit will continue to try to detect it again and again in the same way as that of prior art." *Id.* at 7:26–29. Contec's argument has some merit because the detection must occur during this interval. But the claims do not specify that the press scan unit detects "when the user presses down a button." In fact, the claims do not mention the press scan unit at all, or the switching and setting unit, or the display update unit. The claims only mention the CPU. Thus, when the claims disclose a method for "detecting a user instruction for updating the display mode . . . when the user presses down a button," and "the [CPU] being configured to: detect the user instruction when the user presses down the button," they are not necessarily referring to when the press scan unit detects a button press. The claims skip over the details of a multi-layered process to generalize that the CPU detects the button press in order to update the display. This "detection" could occur when the press scan unit detects the button press, or it could occur at a different time, after the button has been released. There is nothing in the claims or the specification that constrains when this generalized "detection" must occur. Thus, the description of the press scan unit supports either interpretation of "when." And since the conditional meaning is broader than the temporal meaning, and still allows for the immediate detection of the user instruction, the conditional construction is consistent with the description of the press scan

unit. For these reasons, the Court construes "when" according to its conditional meaning and adopts the following construction: "if, or in the event that, the user presses a button."

CONCLUSION

The Court construes the disputed terms as follows:

Claims	Disputed Term	Construction
1, 4	"Powered on" and "Powered off"	No construction required
1, 2, 3, 4, 5, 6	"Power source"	"Original source of power, such as a battery, or the power supply unit"
1, 4	"When the user presses down a button"	"If, or in the event that, the user presses a button"

Dated: January 14, 2020

SARA L. ELLIS
United States District Judge